

**PENYUSUNAN MODUL PENGAYAAN GANGGUAN SISTEM GERAK
SEBAGAI BAHAN AJAR DI SMA/MA
(BERBASIS HASIL PENELITIAN HUBUNGAN ERGONOMI DAN
KELELAHAN MUSKULOSKELETAL PADA KARYAWAN UNY)**

Oleh
Gama Setyoningsih
11317244008

ABSTRAK

Penelitian ini bertujuan untuk mengetahui: kualitas modul pengayaan gangguan sistem gerak yang disusun dilihat dari aspek kelayakan isi, kebahasaan, penyajian, dan kegrafisan berdasarkan penilaian oleh ahli media dan materi, serta guru; dan tanggapan siswa setelah menggunakan modul pengayaan gangguan sistem gerak sebagai panduan pengayaan materi sistem gerak.

Penelitian ini merupakan penelitian *Research and Development (R&D)* dengan model *Analysis, Design, Development, Implementation, and Evaluation (ADDIE)*, namun hanya sampai tahap *Development*. Produk awal modul disunting oleh 2 dosen ahli materi dan 2 dosen ahli media agar produk awal tersebut sempurna. Penilaian kualitas modul dilakukan melalui implementasi terbatas dengan subjek penelitian terdiri dari 2 orang guru matapelajaran biologi dan 15 siswa kelas IX SMAN 8 Yogyakarta yang telah mencapai KKM (≥ 7.5). Objek penelitian adalah kualitas modul pengayaan gangguan sistem gerak. Data kualitas modul dianalisis dengan statistik deskriptif. Instrumen yang digunakan dalam penelitian ini berupa lembar angket kualitas perangkat pembelajaran meliputi lembar penilaian untuk dosen ahli dan guru, serta lembar tanggapan untuk siswa.

Hasil penelitian menunjukkan bahwa: kualitas modul pengayaan gangguan sistem gerak sebagai bahan ajar di SMA/MA kelas XI berdasarkan penilaian ahli materi dan ahli media dilihat dari aspek kelayakan isi adalah baik, sedangkan dilihat dari aspek kebahasaan, aspek penyajian, dan aspek kegrafisan adalah sangat baik. Kualitas modul pengayaan gangguan sistem gerak sebagai bahan ajar di SMA/MA kelas XI berdasarkan penilaian guru dilihat dari aspek kelayakan isi, kebahasaan, aspek penyajian, dan aspek kegrafisan adalah sangat baik; tanggapan siswa terhadap penggunaan modul pengayaan gangguan sistem gerak sebagai panduan pengayaan materi sistem gerak adalah baik.

Kata Kunci: *modul, pengayaan, bahan ajar, sistem gerak, muskuloskeletal, ergonomi.*

**ARRANGING AN ENRICHMENT MODULE OF MUSCULOSKELETAL
DISORDERS AS LEARNING MATERIALS IN SMA/MA (BASED ON
RESEARCH OUTPUT OF RELATIONS BETWEEN ERGONOMIC AND
MUSCULOSKELETAL FATIGUE ON UNY EMPLOYEES)**

By
Gama Setyoningsih
11317244008

ABSTRACT

This research aims to determine: quality of enrichment module of musculoskeletal disorders seen from content expediency, language, presentation, and graphic aspect based on assessment by expert of media and materials, as well as teachers; and student responses after using enrichment module of musculoskeletal disorders as a guide enrichment of motion systems material. This research is a Research and Development (R & D) with an ADDIE model that consists of analysis, design, development, implementation, and evaluation, but only to a point Development. The initial module product was edited by two experts of media and materials. The assessment of module quality was done through limited implementation to the research subject that consist of two teachers and 15 biology 11th grade students of Senior High School 8 Yogyakarta who have reached school grade ≥ 7.5 in motion systems material. The object of this research is the quality of musculoskeletal disorders enrichment modules. The data of modules quality were analyzed with descriptive statistical. The instruments used in this research are the assessment sheet for expert lecturers, and teachers, as well as the response sheet for students. The results showed that: the quality of enrichment module of musculoskeletal disorders based on assessment by expert of media and materials seen from content expediency aspect was "good", while from language expediency, presentation, and graphic aspect was "very good"; the quality of enrichment module of musculoskeletal disorders base on assessment by teachers seen from content expediency, language, presentation, and graphic aspect was "very good"; the students responses after using enrichment module of musculoskeletal disorders as a guide enrichment of motion systems material was "good".

Keywords: module, enrichment, teaching materials, motion system, musculoskeletal, ergonomics.